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10 January 1983

# Worldwide Report

ENVIRONMENTAL QUALITY

No. 382



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MONITORING USE OF DDT REQUESTED

Jakarta HARIAN UMUM AB in Indonesian 9 Oct 82 pp 1, 2

[Excerpts] Parliamentary circles on Friday asked the government to monitor the use of DDT, in view of the many recent deaths from poisoning by this dangerous pesticide.

The information was revealed in a Jakarta newspaper, which noted that 3 persons were dead and 10 others hospitalized from the village of Klodran, Boyolali, East Java. They had eaten contaminated food.

It was previously reported that 21 inhabitants of the village of Plaeng, Klaten, Central Java, died after eating a ceremonial meal; investigation later showed that the food had been contaminated by DDT.

Tati Sumiarno of the construction workers faction believes that the incidence of DDT poisoning shows that the public is not sufficiently aware of the dangers of DDT use.

Because of this he asked the government to weigh the wisdom of using pesticides like DDT, in view of the fact that several nations have banned them.

Dr Bawadiman of the same faction said sales of DDT should be strictly limited, and its use should be closely controlled.

Both Tati Sumiarno and Dr Bawadiman believe the government must disseminate information concerning the benefits and dangers in the use of pesticides, especially DDT.

G.J. Adjitjondro, vice chairman of the presidium of the Environment, a communications forum composed of self-help groups active in environmental matters, asked the government to ban the importing of DDT, and cancel plans to build DDT factories in Indonesia.

The government should also disseminate information on pesticide problems, which have taken many lives recently, Aditjondoro told ANTARA on Friday.



7  
"Up to now, the producers of pesticides, including DDT, have stressed the benefits of DDT use, without explaining the negative aspects, which are often concealed," he said.

Indonesia imports around 4,000 tons of DDT each year; this figure is expected to increase, in view of the antimalaria program in East Timor. DDT is regarded as a means to exterminate the increasingly resistant malaria-causing mosquito.

9197

CSO: 5000/8004

#### LOGGING, OTHER DAMAGE TO FORESTS REPORTED

Jakarta KOMPAS in Indonesian 4 Oct 82 pp 1, 5

[Excerpts] Statistics on the damage to Indonesian forests are not gratifying, since about 400,000 hectares are damaged yearly, or, more than 1,000 hectares per day. The World Food and Agriculture Organization reports that some 5,000 hectares of tropical forests are damaged each day, worldwide.

The figure of 1,000 hectares per day was revealed by the director general for forests, Soedjarwo, at the Bogor Agricultural Institute last week.

The bulk of the forest damage is caused by the methods of those who hold forest exploitation permits, and do not wish to reforest the area after felling. They generally cut the timber, and do not try to protect the forests, in keeping with the Selective Logging System.

In the Selective Logging System, loggers are responsible for reforesting areas where they have felled the trees, and for restoring the area. At present, there are 7.5 million hectares of forest which have been logged, and then neglected by the loggers.

To save the forests, the government, since mid-1980, has decreed that \$4 for every cubic meter of wood cut be earmarked for a reforestation fund. Loggers have shirked this obligation, so that the government recently had to question 257 of the existing 500 loggers. Of those 257, 127 have been threatened with loss of their permit.

Loggers are not the sole cause of damage to the forests. Another cause is the system of shifting cultivation practiced by people living near the forests. In the dry season, they deliberately burn the forests to create fields. Local inhabitants also burn the forests for their cattle. After the forests have been burned, the land can be planted with grass, as food for cattle.

In addition to deliberate burning, there are accidental fires, such as occur when a cigarette butt is discarded in the forest, or from campfires.

Each year, some 25,000 hectares of forest are burned in Indonesia. Data from the Directorate General of Forests indicate that 40,400 hectares burned in 1979-80; 25,500 in 1980-81; 37,200 in 1981-1982; and 28-500 hectares thus far in 1982-1983.

Other forest fires which damage forests are caused by illegal sawmills. They cut wood in any location. This theft of lumber takes place in Riau, Jambi, South Sumatra, Kalimantan, Java, and other places. Cases of illegal logging have also been noted in the Citarum area of West Java, where inhabitants use wood to make charcoal.

As a result of damage to the forests by loggers and by the population at large, Indonesia now has 43 million hectares of land which must be rehabilitated. This includes 23 million hectares of underbrush, and 20 million hectares of critical land.

9197

CSO: 5000/8004

## CASE FOR LONG-TERM ENVIRONMENTAL PLAN IS ADVOCATED

Hamilton THE ROYAL GAZETTE in English 25 Nov 82 p 8

[Text]

The head of Bermuda's Biological Station has urged Government to draw up long range plans to protect the Island's environment and resources, including the setting up of a Department of the Environment.

Dr. Wolfgang Sterrer, addressing Hamilton Rotary Club on Tuesday, said two major steps were needed now.

"The first one is that Government follow up its bold, landmark decision on the open spaces moratorium with a comprehensive environmental study that would encompass not only land use, but the whole range of environmental and resource issues, with a view to providing the basis for an integrated development plan for Bermuda far into the future," Dr. Sterrer said.

He said his second and no less urgent proposal was for a review of existing and departmental responsibilities to get rid of conflicts between present departments and making for greater cohesiveness in long-range planning.

He suggested this could be achieved by creating a Department of the Environment which could monitor and manage resources and also safeguard the Island's natural facets.

Dr. Sterrer also called for

an Office of Planning, possibly directly under the Premier's office, to coordinate all departments and develop long range policy for the Island's "social, economic and environmental well-being."

After first outlining the resources picture worldwide, Dr. Sterrer narrowed his remarks to the sort of problems small islands like Bermuda faced.

He argued that no island could exist in a closed system but added that island communities faced difficulties that external influences could cause.

"Any unregulated input into the system, be it goods, technology, capital, information, or organisms, including people, can lead to significant structural changes or even the breakdown of the system itself," Dr. Sterrer said.

He went on: "Bermuda's history tells us of a number of close encounters with disaster, from the early days of reckless depletion of the Island's virgin resources to the collapse of its agricultural export industry before the last war."

"Rescue came on several occasions just in the nick of time," Dr. Sterrer said, "usually because of the Island's strategic importance."

Yet Bermuda was now capitalising on one of its least tangible resources — its environmental attractiveness, Dr. Sterrer said, and "mining" it for tourism.

"Who would have imagined only a few decades ago that the blueness of the water, the green of the land and the friendliness of the people would soon become Bermuda's only resource?" Dr. Sterrer asked.

"Yet there may be others which we are not aware of, but which are in danger of being overrun by development," he said.

Dr. Sterrer listed the types of resource options small islands had. They fell into four categories — primary, secondary, tertiary, and quaternary.

He continued: "It appears that of the few primary resources that Bermuda has, one — stone quarrying — is on the verge of depletion."

"Two others are severely threatened — farming because of the disappearance of arable land and fishing because of overexploitation and/or pollution," Dr. Sterrer said.

"Only one primary resource — freshwater — is being managed to any extent. One other local resource of great potential, energy from sun, wind, waves and solid wastes, has not even begun to be tapped to any extent."

Dr. Sterrer said Bermuda lacked secondary resources, which took in manufacturing, because of the de-

mand the industry needed for raw materials, space and energy.

The third group consisted of services to society like tourism — the mainstay of Bermuda's economy — and the fourth was transmission of information and control of other enterprises. Bermuda's international business fell into this category.

He said that these resources depended not only on the outside world but on each other.

"Since Bermuda's resources are largely tertiary and quaternary, any further erosion of the primary and secondary resources would have a destabilising effect on the entire economy," Dr. Sterrer said.

He urged that small islands like Bermuda should promote what was unique and traditional rather than import foreign criteria and technologies. He said resources had to be protected and managed and also that political leadership had to learn that small islands like Bermuda were equally as vulnerable to piecemeal solutions as they were to short term gain.

He went on to call for a study of the environment leading to a long-term, integrated development plan and the creation of a Department of the Environment.

## CABINET ASKED TO DEVELOP LONG-TERM POLICY ON PARKS

Hamilton THE ROYAL GAZETTE in English 5 Nov 82 pp 5, 8

[Text]

The Bermuda National Trust has called on Cabinet to develop a "proper, long-term parks policy."

The call comes in the fall edition of the Trust newsletter, which also reveals that Bermuda's parks are only protected by the Cabinet policy of the moment.

"In other words," says the article, "there is little barrier to a harassed Minister who is facing pressures to put up a building or set aside an area for a special recreational purpose from nibbling away at parkland."

"For instance, sections of the Queen Elizabeth Park north of Vesey Street, Devonshire, have not only been used for part of Ocean View Golf Course, but also for the Equestrian Federation's showing. For instance, part of St. David's Head park has been used to erect a radio beacon for mariners.

"For instance, portions of land at Ireland Island, which it was once hoped would be part of Lagoon Park, are likely to be used for housing."

"While it is true that the Minister of Works and Agriculture can designate land as a nature reserve under the Protection of Birds Act, there is no legal definition of National Park on Bermuda's statute books.

"Although its full title is the Ministry of Planning and the Environment, in fact the Ministry lacks an Act covering the environment setting down basic policy and allowing the development of regulations — and therefore cannot create national parks.

"It seems to the Trust at this point that the Cabinet should ask the Trust and the Audubon Society (as owners of open space), the Departments of Planning, Agriculture, Tourism and

Education to recommend a policy and outline legislation to enforce it.

"The policy should be forward looking. Government has already shown the way with the purchase of a large portion of the Bierman property at Ferry Point, St. George's — and more of this action is needed.

"There are still several tracts of land in private hands which would be desirable as preserved open spaces — for instance, the two properties at present designated for hotels, one at "Southlands" and the other just west of Warwick Lane on South Shore Road.

"Ideally a parks policy should seek a chain of quiet open spaces linked as much as possible by trails using footpaths and quiet roads. The railway right-of-way and tribe roads would go a long way towards this goal."

The Trust newsletter will be circulated among members next week.

# ISSUE OF OPEN SPACE, PARKLAND SPARKS PUBLIC-GOVERNMENT ROW

Hamilton THE ROYAL GAZETTE in English 25 Nov 82 p 3

[Text] Seventeen lots of land comprising some 22 acres have been approved for subdivision since Government's moratorium on splitting open space into building lots came into effect six months ago, it was revealed at a public meeting last night.

Works, Agriculture, Fisheries and Housing Minister Dr. the Hon. John Stubbs was put squarely in the hot-spot at the packed City Hall meeting called by the Save Open Spaces Committee — and titled "The future of our open spaces."

Despite the meeting's mandate, however, little hint was made by Dr. Stubbs on the future of open spaces. He told his lively audience that he would not comment on plans for specific lots of land, and said he could not discuss Government's thinking on future policies until a survey of all open spaces being conducted by Mr. David Wingate and Ms. Vicki Gomez had been completed.

Government was accused by environmentalist and SOS founder Mr. Stuart Hayward in his opening remarks of being aggressive in acquiring land for road widening schemes and golf courses, but of shying away from acquiring land to preserve as national parks and open spaces.

Government had turned

down lands suitable for parks, such as Wreck Hill comprising 65 acres and 25 acres near Mermaid. It had declined acquisitions of farmland and dairyland, such as the Pampas.

Dr. Stubbs on the other hand defended Government calling the accusations "a series of gross misrepresentations". Government had not been sitting idly by while open spaces dwindled — Mr. Wingate and Ms. Gomez were compiling a survey on remaining open land. Development had not been entirely "helter skelter". Hilltops and ridgelines had been preserved which were clearly noticeable even in the denser parts of the Island.

He launched into an attack on those in the Opposition ranks who criticised Government's every effort at improvements. Referring to P.L.P. criticism of Government's housing development on a Frog Lane farm, he said: "I get a little cynical when I see an architect in the Opposition calling a Press conference hugging farmers days after the objection period has ended. Why didn't he file an objection? Don't tell me he didn't know. I refuse to believe that."

Bermuda Biological Station chief Dr. Wolfgang Sterrer asked Dr. Stubbs

and future speakers to refrain from discussing politics and stick to environmental issues.

Asked when Government policies on open space would be made, Dr. Stubbs said his Ministry would soon address the broader issues raised in the Wingate-Gomez survey. Government was committed to draw up a policy before the extension on the subdivision moratorium expires on May 1.

One member of the audience suggested taxing motor cars and putting that money towards the acquisition of parkland. But chairman of the meeting Senator Gerald Simons countered that if cars were taxed too heavily it would mean they were available only to the rich.

Miss Emma Ingham asked when Government would propose legislation to protect parks and establish a national parks system.

Dr. Stubbs replied that over the past months Government had set in train a systematic turnover of appropriate Government land to the Department of Agriculture as part of a parks programme. "The most recent is the island off Daniels Head," he said.

But specific legislation establishing a national parks system could only be "part



and parcel" of the open space analysis which would be provided in the Wingate-Gomez report — which was expected in early 1983.

Senator Simons told Dr. Stubbs there were concerns that open space lands held by Government could be viewed as a "land bank" for future development. Dr. Stubbs answered: "I don't accept for a fact that the National Trust is the repository of greater wisdom and greater concern for open spaces than Government." He did accept, however, that the National Trust was the "perfect repository" for lands which should be held as they are now in "perpetuity".

Mrs. Joyce Hall said it was important to preserve land not only for recreational purposes and as gardens, but also to hold lands in their natural states. She also complained that many abused public lands. Dr. Stubbs believed, however, that abuse was part of human nature which was to be expected.

Major John Carswell asked if development on small islands could be prohibited. But most of those islands had not been developed, said Dr. Stubbs.

Mrs. Nancy Wadson asked whether Government was considering the purchase of a 26-acre piece of land at Mermaid Rocks for a park in Warwick — the Island's densest parish. Dr. Stubbs said he could not discuss this in detail, but hinted that Warwick resident, Community Affairs Minister Senator the Hon. Quinton Edness, had raised this point in Cabinet meetings. Some, said Dr. Stubbs, opposed the acquisition for the time being.

Mr. Hayward asked if Dr. Stubbs' ministry would be more aggressive in future in acquiring open spaces. He replied the ministry already was — there was a tract of land presently under consideration. But he said he

could not discuss details to avoid price speculation.

One member of the audience said national parklands should be placed in the hands of apolitical bodies such as the National Trust to prevent future Governments from developing them. But Dr. Stubbs said that any government could change laws and snap back the land if it wanted to.

Col. Michael Darling, President of the National Trust, threw his weight behind pleas to Dr. Stubbs to place more lands in the hands of the Trust.

Dr. Sterrer asked if Government would make any moves to ensure that all Government departments were required to get planning permission before undertaking development. Dr. Stubbs said they already were — and that there had been a marked improvement in the quality of public road schemes since that was enforced.

Mr. David Wingate told the audience that Bermuda should strive to preserve 25 percent of its land space. Fifty-percent was already lost, he said, which meant that moves should be set in motion quickly to preserve what was left. At the same time it was important that the natural ecological balance of the Island was preserved.

Farmers spokesman Mr. Richard DeMoura said he had a simple plan which would preserve 1,600 acres of open space. "It's for your Government, Dr. Stubbs, to enact a law without any loopholes stating that no longer will there be any concrete, cement, steel or tarmark on arable land. We've had it. We can't grow anything on tanktops."

But Dr. Stubbs said: "Anyone who suggests an absolutely weather-tight planning restriction with no flexibility in it at all flies in the face of the real world." Government instead had adopted the policy of put-

ting back equal amounts of land of arable land for that taken away for other uses.

Mr. Hayward commented that while it was admirable to maintain stocks of arable land, the only way to follow that policy was to rob other supplies of open space.

Lawyer Mr. Alan Dunch, chairman of the National Trust's environmental committee, reiterated the call on Government to acquire the Warwick land for park space. And he suggested that Government buy it now, because its costs would only increase the longer Government waited.

Shadow Minister of Works, Agriculture, Fisheries and Housing Mr. Walter Brangman told the meeting that his party was supportive of the aims of environmental groups. "This meeting is concerned about something which is also very dear to me," he said, and told those gathered: "You may think of me and my colleagues in the Opposition as bogey men. Our interests are as great as yours." But he warned the groups to maintain their credibility.

Mr. Andrew Trimmingham suggested to Mr. Hayward that he and the SOS collect money and buy its own property instead of criticising Government at every turn.

One member of the audience asked whether Government had considered reclaiming land for use in developments. Dr. Stubbs replied that it had not — and that it would only be considered as a last resort. Reclaimed land was topographically "boring", he said. But the 200 square mile shelf on which Bermuda stood could be reclaimed.

Another asked if Government would turn Pembroke Dump into a park. Dr. Stubbs said that was Government's intention. It would then incinerate instead of pulverise garbage.



GOVERNMENT STUDIES TIGHTER POLLUTION CONTROL MEASURES

Hamilton THE ROYAL GAZETTE in English 8 Nov 82 pp 1, 2

[Excerpts]

New measures to tighten up controls for protection of the environment are now being studied by a Government committee, the Hon. Haskins Davis, Minister of Planning and the Environment revealed yesterday.

The committee's major aim will be to recommend ways of bringing environmental matters together under one heading so they become the responsibility of one ministry, said Mr. Davis.

"At the moment oil pollution of the water is dealt with by Marine and Ports, pollution round the shores is the Health Department and other matters go to different departments," the Minister said.

"We are trying to get the whole thing under one roof." It was possible that responsibility would go to Mr. Davis' own ministry of Planning and the Environment, he added.

The committee was set up by Cabinet about two weeks ago. But Mr. Davis declined

to release the names of the members. "I wouldn't like to disclose the names because it is a Cabinet decision. I don't think it has been to caucus yet," he said.

"This committee is looking into the overall matters of the environment, noise, water pollution and everything to do with the environment. They are going to make recommendations as necessary."

News of the environmental committee follows Friday's Throne Speech in which Government pledged a study and the introduction of legislation "as necessary".

Stalwart environment campaigner Mr. Stuart Hayward welcomed the Throne Speech pledge as a "step in the right direction".

Mr. Hayward also urged Government to develop a conservation strategy and hoped that an expert with broad experience of planning would be among the body of "qualified consultants" which were promised in the Throne Speech to recommend steps to ensure "the quality of life for all Bermudians".

## GABORONE DAM CANNOT MEET WATER SUPPLY DEMANDS

Gaborone DAILY NEWS in English 23 Nov 82 p 1

[Article by Larona Sedimo]

[Text] The water supply of the Gaborone dam was initially meant to meet the demand for a population of 20,000 with some surplus, but today there is a population of about 60,000.

By the end of this decade, the population in Gaborone may reach 100,000 to 12,000 and this indicates that the supply of water from the Dam is likely to be inadequate and "infact design is normally based on a risk of failure situation of one to 20 years."

This was said by the Water Works Superintendent, Mr John Collins when briefing the Gaborone Chamber of Commerce at Tsholetsa Hall recently.

Mr Collins explained that in the present context, the risk of failure is one in seven years. Next year, Mr Collins added, it is likely to be around one to four years and 1984 one in one year.

This, he said, is with the normal re-charge of the water in the dam. Mr Collins however regretted that with the drought over the past 18 months in the country, the level of the water in the Dam has dropped because there has been little re-charge.

He warned "If there is no re-

charge or little recharge in this coming season, the situation in 1983 will be very serious."

It is probable, he went on, in such circumstances that supplies would have to be severely restricted, down to approximately 50%.

Major restrictions, he said, will include watering, car washing, and swimming pools. The restrictions, Mr Collins further warned, will require shutting down supplies for many hours per day with only emergency supplies being made for hospitals and the Power Station.

To remedy the situation in the short term, he said, the Water Utilities Corporation (WUC) is undertaking a temporary raising of the spillway of the Dam by one metre and a system of turning over the water in the reservoir to reduce evaporation losses.

In the longer term, he said, a contract is now out to tender to raise the level of the existing Gaborone Dam by eight metres and further, dams will be necessary at the Kolobeng, Metsemotlhaba and possibly Marico and Limpopo rivers.

"All these works will inevitably cost a lot of money and over the next ten years, in excess of P1000 million will have to be spent to maintain Gaborone water supplies," he added.

This means that water supplies tariffs will have substantially increased to meet the costs, as the WUC is a commercial organisation legally bound to ensure a reasonable return on its assets, he stressed.

The next decade will be a difficult one for WUC, Mr Collins warned. He said it is essential that people realise the importance of water supply in their everyday lives and ensure that water is not wasted.

Asked by one of the audience why water could not be obtained from perennial rivers in the country, Mr Collins responded that those types of rivers were only found in the North West and that doing that would mean raising the tariffs of water for the consumers.

The aim of the Corporation, he said, was to exploit all the possible methods so as to enable people to pay cheap tariffs.

# DROUGHT KILLED THOUSANDS OF CATTLE IN NORTH EAST

Gaborone DAILY NEWS in English 26 Nov 82 p 1

[Article by Mishingo Mpaphadzi]

[Text]

AT LEAST 13 000 cattle in the North East District have died as a result of drought, a survey of the District Regional Agricultural Office has revealed.

According to the area's Agricultural Officer, Mr Rapula Kgotlele, if the drought persists, farmers in the North East would soon be without cattle. He therefore advised that they apply for TGLP ranches at Nata where grazing conditions were comparatively better.

Mr Kgotlele was giving a report to the North East District Village Development Conference held at Masunga recently.

In his opening remarks, Specially Elected MP, Mr Chapson Butale, told the conference that Government has entered into negotiations with owners of private tractors to assist the poorer sector of the community to plough.

In addition he said the National Development Bank has been approached to speed up the processing of seasonal loans for the purchase of agricultural implements and other financial assistance relating to ploughing.

Mr Butale said the benefits are meant specifically for people who are currently participating in the drought-relief scheme.

The MP also urged extension workers and members of Village Development Committees to work in harmony in order to ensure the success of progress

in the rural areas.

Mr Butale warned that friction between the two agents of development normally result in failure to implement self-help projects.

He noted that councillors in some instances found it difficult to represent the people because extension workers interfered with their work.

He quickly added, "extension workers on the other hand maintain that their work was made difficult by councillors and the community at large because they don't always support and appreciate their efforts."

Earlier when briefing participants on the purpose of the conference, the chief community development officer, Mr L. Masikara, said the meeting would among other things, prepare for both the annual plan and the three year district development plan.

He said that data collected at the conference would relate mainly to the problem needs and priorities of the people at grass root level.

Mr Masikara emphasised that integrated approach to rural development should be seen as a method in which agents jointly identify problems, plan the course of action and implement the plan with active and continuous participation of the people.

## BRIEFS

INEFFECTUAL RAINS--DESPITE what an official of the Meteorological Department described as the "heaviest rainfall" recorded in Gaborone in a single day, there has been no re-charge of the Gaborone Dam which is at present 35 per cent full. The Monday downpour did not cause any serious damage to vulnerable places like old Naledi. Only two huts collapsed. Gaborone (headquarters) recorded about 120 millilitres while Caborone (dam area) recorded 114 millilitres. The Meteorological Department official said in a telephone interview that the records were higher than the total of the July-October period rainfall. The total for the period is about 80 millilitres. The Chief Executive of the Water Utilities Corporation Mr C. Sayles told BOPA yesterday that despite the rainfall preliminary indications were that there was no re-charge of the Gaborone dam. He stated that if there is no re-charge or little re-charge during this wet season, the situation in 1983 will be very serious. Mr Sayles recently told the Gaborone Chamber of Commerce meeting that if the water level does not change water supplies will be severely restricted down to 50 per cent of normal demand. Meanwhile from other stations BOPA reporters reported only little showers, fair-rain to poor rainfall. The showers either started Monday evening or yesterday morning. Mogoditshane, which is about two kilometres from Gaborone, topped the other outside Gaborone centres with a rainfall of about 60 millilitres followed by Kanye with 51 millilitres. Other centres records are: Oliphants Drift .5; Molepolole 20; Maun 12.3; Seronga 3; Shakawe 4.5; Francistown 2.5; Zwenshambe 20; Khale 108; Tlokweng (border) 40; Jwaneng 39.2; Dibete 21; Machaneng 9; Mahalapye 14.4; and Martins Drift 19. [Text] [Gaborone DAILY NEWS in English 24 Nov 82 p 1]

CSO: 5000/55

## EFFECTS OF VARYING LEVELS OF LAKE MALAWI ANALYZED

Blantyre MALAWI NEWS in English 6-12 Nov 82 p 5

[Text]

**AT this time of the year high winds drive powerful waves onto the western shore of Lake Malawi. While this is an inconvenient and often dangerous season for fishermen, it does not result in widespread damage because the lake level by this time has fallen below its peak, leaving homes, hotels and gardens safely out of reach of the pounding surf.**

Each year, Lake Malawi rises and falls between 1.5 and 3 metres in response to rainfall over the lake and land catchment, to evaporation from the lake surface and to flow down the lake's only outlet, the Shire River.

The maximum level is reached sometime in May when the rainfall over the land catchment swells the rivers and pours down the escarpments into this Rift Valley lake. By November, flow down the River Shire and evaporation from the Lake have exceeded the inflow (and any small rainfall input during the dry season) to such an extent that the lake level falls to a minimum.

On top of this seasonal pattern of rising and falling levels, there is a long term pattern of rising or falling

peak levels. In May 1980, for instance, the lake rose to an unprecedented high level, causing widespread lakeshore damage from Mangochi to Karonga.

**RECORD**

This followed steadily increasing new record levels in 1976, 1978 and 1979. Little wonder that lakeshore dwellers waited with apprehension the 1981 and 1982 peaks, that the trend would continue causing widespread evacuation. In the event, the peak level fell nearly a foot in 1981 and again 1982. But was this merely a respite — Nature's trick to deceive the unwary?

The answer to this question has become the responsibility of the newly-formed Department of Lands, Valuation and Water in the Office of the President and Cabinet. Part of that Department, the Water Resources Branch, is charged with assessing and safeguarding the Nation's water resources. A specialist unit, the Hydrology Section, maintains a constant watch on river flow and lake levels and monitors the way in which the water balance of the lake fluctuates.

To assist in the evaluation of the single most im-

portant water resource — Lake Malawi and its outflow the Shire River — the Hydrology Section has been strengthened by a UNDP-funded team from the World Meteorological Organisation.

An objective of the combined operation was to compile a special report on Lake Malawi, gathering together all available data and producing a broad outline of the water balance.

Now the team is engaged in a follow-up to that report, using the sophisticated techniques of mathematical modelling to predict what the future holds in store.

### **WATER BALANCE<sup>a</sup>**

What do the specialists say about the lake levels? Their answer, although not yet complete, hinges on an understanding of the mechanism of the lake water balance.

The significant fact is that rainfall and evaporation are the controlling components of this water balance against which all other components, although important, are comparatively minor.

Evaporation, which is controlled largely by solar energy, varies little from year to year whereas rainfall can vary, for example, from 55 inches over the land catchment in 1979 to 32 inches in 1949.

How many people know, for example, that the lake levels fell so low around 1915 — more than 20 feet lower than the peak in 1980 — that it was possible to cross the Shire at Mangochi on foot?

Small sand bars on the Shire were able to hold back practically all flow from 1915 to 1937 by which time rainfall and lake levels were steadily increasing and the sand bars were

breached.

Other important falls in lake levels occurred in the 1940's and 1950's when economic growth was pointing towards developing the potential for hydropower in the Shire River.

In order to safeguard such large, future investments in hydropower stations at Nkula and Tedzani, it was necessary to consider regulating the flow in the Shire River so that the normal seasonal variation in flow could be smoothed out. The answer was the Kamuzu Barrage at Liwonde which was constructed in 1964, and under normal circumstances can assist in guaranteeing sufficient flow at all times to generate electricity for the Nation's needs.

The barrage has been fully open since 1976, apart from two short partial closures.

How serious a threat is there? Once again, it is necessary to look at the various factors in perspective. It is known from the work of Dr. Crossley at Chancellor College that the 1980 peak level has only been approached twice in the last 2000 years.

It is clearly a rare event but, with lake levels remaining relatively high, how much of a high rainfall do we need to cause a dangerously high peak again and can we forecast such an event?

Unfortunately, even with the technological advances which have placed men on the Moon and satellites around Saturn, scientists are still unable to forecast either the onset or the adequacy of a rainfall season. All that be said that needs a rainfall 20 per cent higher than the long-term average to sustain the lake at its present level and any

shortfall on this, as during the last two years, will produce a drop in lake level.

#### WORRIED

With this scenario, it becomes understandable why the Department of Lands, Valuation and Water is worried more about low lake levels than future high levels. Economically, the consequences of a failure to maintain the required flow in the Shire to keep the existing and planned hydropower stations in operation are enormous in comparison with lakeshore damage. This is not to say that the possibility of the lake exceeding the high level of 1982 does not exist. Statistically, it has a low probability and, quite prudently, the Government is taking steps to safeguard certain threatened areas. Karonga Township, for example, is being replanned and vulnerable areas are being evacuated.

The probabilities of the lake falling to a critical low level are now being asses-

sed by generating statistically similar runs to rainfall data, all of which could theoretically occur although we cannot say when, of course. Within these rainfall series, there are runs of drier-than-average years which could cause catastrophic drops in lake level.

Using these rainfall series in the mathematical model it is possible to predict the likelihood of the barrage being unable to sustain the required flow in the Shire under various operating rules. This in turn will allow ESCOM to plan future development to take into account the economic risks and possible emergency or contingency measures which will have to come into effect.

Another question which is often asked is "what effect does the barrage have to peak levels?" While it is true that it has an effect, possibly increasing the peak level by one foot or so, it had hardly any effect on the 1980 level because it had remained fully open since 1976.



# INEFFECTIVENESS OF ENVIRONMENT CONSERVATION LAW NOTED

Johannesburg THE STAR in English 8 Dec 82 p 28

[Article by Mike Nicol: "Thumbs Down for a Law Without Teeth"]

[Text]

Ensuring "a harmonious interchange between man and his habitat" is a lofty ideal. It means that development can go ahead but with a strict eye to avoiding environmental destruction.

Which was why the Government wanted to promulgate the Environment Conservation Bill, argued the then Minister of Environment Affairs, Dr Nak van der Merwe, during the final debate on the Bill earlier this year.

The Opposition agreed, and in July 1982 the Bill became law.

According to Professor Rolf Botha, chairman of the Habitat Council, that action placed South Africa in the vanguard of the conservation movement. He could see positive signs of increasing State responsibility towards the environment.

Certainly in the last three years there has been a softening of the Government's attitude towards conservation — the Kruger National Park coking coal controversy is an indication of that.

There is no more abrasive talk of changing the law, or housing

lions in the Carlton Hotel. Instead Ministers have expressed a desire to see the park remain intact.

But is the new Environment Conservation Act all it sounds as if it should be? No, says Professor Andre Rabie of the law faculty at Stellenbosch University. In fact he says that if ever an Act was misnamed it is this one.

For one thing it has no environmental policy statement; for another it does not supercede any other Acts of Parliament. In short, it is an Act without teeth.

Professor Rabie has reason to be critical. The White Paper which preceded this law was entitled "A National Policy Concerning Environmental Conservation." When it was published conservationists greeted it with enthusiasm as it was a positive indication of the government's attitude towards the environment.

But that White Paper made one mistake: it wanted the centralisation of all the conservation authorities. And the lobbying for centralisation was



not as sensitive as it could have been.

The Wildlife Society supported the White Paper as it would have led to a rationalisation of resources and finance but the provincial conservation bodies, particularly the Natal Parks Board, felt it would erode their powers. Nor had they been consulted.

Says Professor Rabie: "There was no way I could see the provinces losing control of their activities but this was the way some of them saw it."

As a result the Bill was withdrawn at the last moment and watered down.

The Act now provides for a Statutory Council for the Environment which will draw its members from both the public and private sectors. This, Professor Rabie believes, is a positive move, but the council will still merely advise on the co-ordination of environmental affairs.

However, the Act does allow for the appointment of ma-

nagement committees for such sensitive areas as the Magaliesberg. These committees can freeze land-use in a particular area to ensure that environmental destruction is kept to a minimum.

But as far as Prof Rabie is concerned the Act was really promulgated to pave the way for regulations regarding noise control and the disposal of solid waste. Even there he is unhappy as there are no guidelines and he feels the two issues should have received separate legislation.

"What I would really welcome is a National Environmental Policy Act such as that in the United States," he says. "We need to have obligatory Environmental Impact Assessments for sensitive projects but this sort of legislation is not even on the horizon."

But, with Prof Botha, he believes the Government's attitude towards environmental conservation is changing — so there is yet hope for tougher measures in future.

# POLLUTION COSTS INDUSTRY OVER R500-MILLION

Johannesburg THE CITIZEN in English 7 Dec 82 p 12

[Text]

SOUTH African industry has spent over R500-million on air pollution equipment over the past 10 years.

South Africa's chief air pollution control officer, Mr Martin Lloyd, during talks with the Gas Cleaning Equipment Association of South Africa, said while these efforts had resulted in a general overall improvement in industrial air pollution levels, the situation varied from sector to sector.

The degree of success achieved in the control of air pollution depends very much on the industry, the availability of reliable control technology and the financial implications in each case, he said.

In the steel industry, four out of the country's five major steel plants had been fitted with approved equipment to clean emissions from their furnaces. Capital expenditure over the past 10 years amounted to almost

R105-million and had resulted in an improved air quality in towns such as Newcastle, Vanderbijlpark, Witbank, Middelburg and Benoni.

Mr Lloyd said it did not always follow that once a plant had been fitted with highly efficient air cleaning equipment, emissions would be reduced or eliminated. The main factors contributing to this unsatisfactory condition were the unreliability of air cleaning equipment and inexperienced or unmotivated operators.

To counter the "rather lax attitude" of some operators, which led to poor operating conditions and poor maintenance, his department as the controlling authority would have to clamp down in future.

"To assist us in this respect, continuous monitors with recorders will gradually be installed at all offending plants," he said. — Sapa.

CSO: 5000/54

# THOUSANDS OF BIRDS KILLED BY POISON SPRAY

Johannesburg THE STAR in English 26 Nov 82 p 1

[Text]

Scientists at the Department of Environment Affairs are investigating the death of thousands of wild birds and game fish in the Western Transvaal.

Farmers and sportsmen in the area have linked the death of the wildlife to aerial night spraying, supervised by the Department of Agriculture to wipe out finches. The dead birds include ducks, geese, cattle egrets, purple and lesser gallinule, cormorants, herons, swifts, rare flufftails and doves. Freshwater crabs have also died with fish.

They were found dead on Rietpan Vlei between Koster and Lichtenburg, about 200 km from Johannesburg. Farmers there have told black workers not to use vlei water for drinking or watering farm animals, and are providing another source of water.

Farmers in the area fear the contact poison used to kill finches stealing corn is a threat

A spokesman for the Department of Environment Affairs said today the Minister had sent his own representative to the scene to get a first-hand account of the situation.

Diesel fuel laced with an organophosphate poison from the Department of Agriculture Technical Services was sprayed near the vlei on the night of November 15.

The poison was mixed with the diesel to enable it to penetrate birds' feathers.

A Pretoria-based official of the department last night denied the contract aircraft used had over-sprayed the water.

"The spraying was supervised by a colleague from Potchefstroom," he said.

## ALERTED

Authorities were alerted to the deaths

this week by a member of a rod and gun syndicate on the vlei. Mr David Potter, a Johannesburg member, said he noticed changes in the water seven days ago.

"I usually catch lots of big bass but I caught nothing at the weekend. Even the mosquitoes had gone."

He found water fowl including spurwing geese dead in the reeds, some still in their nests. Dead fish were lying on the vlei bottom.

Wildlife was last night reported to be still dying up to 6 km from the dam.

Rietpan, one of the

most important outlying pans in the Western Transvaal, is concentrated on Barberspan near Delareyville. Barberspan is one of only two wetland areas in South Africa recognised internationally.

An investigation into the Rietpan deaths by the Department of Environment Affairs began yesterday as a matter of urgency.

A department spokesman said anyone in any way affected by losses could lay a charge with the police. "This appears to be a first-degree case of ecological murders as far as I am concerned," said the spokesman.

The Water Act makes provision for a R2 000 fine or one year's jail for polluters.

Farmers and others concerned about the deaths are believed to be considering legal action.

A spokesman for AVEX (Pty) Ltd, Rand Airport, contractors for the aerial spraying said the operation on November 15 had been carried out in accordance with directions.

Conservationists and sportsmen fear it could take up to five years to return the wildlife population levels at Rietpan to the point before the spraying.

## BRIEFS

TRANSVAAL DROUGHT BROKEN--RAIN has fallen over virtually the whole of the Transvaal with farmers welcoming the change of weather. The only region still in the grip of severe drought is the eastern Transvaal which has had little or no rain. A spokesman for the Lowveld Tobacco Co-operative at Nelspruit said yesterday there had been no rain in the area served by the co-operative. Conditions were cloudy, but there were no prospects of rain and agriculture was facing serious problems. The worst drought was broken in the south-western Transvaal. In Qwa Qwa, where soaking rain fell on Monday night, the drought was completely broken. Rain had also fallen over the northern parts of Lesotho. Widespread rains began falling in Natal that night and had brought relief in many areas where farmers were becoming anxious. In Natal's interior average rainfall was 20 mm and along the coast about 30 mm. Rain also reached the Free State and northern Cape. In the vicinity of Clocolan precipitation varied between 50 and 70 mm. However Ciskei remains parched. A national day of prayer for rain is to be held at Ntaba-ka-Ndoda on Friday because what little rain which has fallen recently has provided farmers with no relief. Thousands of Ciskeians are to travel by bus to the service, which will be conducted by ministers from the Ciskei's various denominations. The President, Dr L L Sebe, and his executive council, will also be present. [Text] [Johannesburg THE CITIZEN in English 8 Dec 82 p 9]

TSETSE SPRAY PLAN--GABORONE--Botswana's Permanent Secretary for Agriculture has denied reports by The Star's Africa News Service suggesting the anti-tsetse fly campaign could devastate the Okavango Swamps. Mr David Finlay said it was "good and necessary" for the Government to eradicate the tsetse fly in the swamps, as it caused people hardship. He dismissed as utter rubbish reports in which ecologists expressed fear that spraying the swamps with endosulphan could turn the Okavango into a wasteland in 20 years. The claims that endosulphan destroyed wild-life as well as the fly were unbelievable, Mr Finlay said. "For 10 to 15 years we have been trying different sprays to find one that affected the tsetse fly but not other forms of life," he added. "We selected endosulphan because it affects tsetse and hardly any other insects." Last week The Star published articles on the controversial spraying programme, including interviews with officials carrying out the project and ecologists opposed to it. Mr Finlay admitted endosulphan had a limited adverse effect on fish but he said the death rate was 10 to 15 percent a year. The Star had reported tests had found a single spraying could kill 70 percent of one-year-old fish. The Government planned to fence off the delta region to keep cattle out and would enforce this measure soon, Mr Finlay said. [Johannesburg THE STAR in English 25 Nov 82 p 11]

## MOST NORWEGIAN MONEY PLEDGED EARMARKED FOR WATER PROJECTS

Harare THE FINANCIAL GAZETTE in English 26 Nov 82 p 8

[Text]

TWO officials from the Ministry of Water Resources and Development left for Norway this week to consult with Norwegian authorities on the selection of a suitable consulting company to participate in Zimbabwe's Norwegian-sponsored Rural Master Water Plan.

Norway has set aside \$1m to finance the plan, and four companies who are competing for the contract had already visited the country and compiled their findings for consideration by the authorities, the Norwegian ambassador, Mr Knut Taraldset, told *The Gazette*.

The successful company would visit Zimbabwe before Christmas to set up and register as a consultancy firm and work is expected to start after Christmas, the ambassador said.

"During Zimcord, Zimbabwe and Norway signed an agreement for \$10m for the reconstruction of boreholes. We pledged a further amount of about \$21m at about \$7m a year for 1982/83/84 as a continuing exercise and two thirds of the total for the three years will go into water projects," said Mr Taraldset.

All aid given by Norway is on 100% grant basis and the amount

pledged for the 1983 period had been increased by 10%.

Under a commodity assistance programme over three years and starting this year, Norway has pledged about \$3m for the procurement of Norwegian commodities.

## BENEFIT

The first project to benefit from this assistance is the bulk milk collection scheme. Milk tanks are being delivered free from Norway and sold to the commercial farmers. The counterpart funds generated by the sale of these tanks will go into the development of the peasant dairy sector and dairy cooperatives.

"We are also going to provide about 11 000 knapsack sprayers to Agritex and these will be sold to communal farmers at a 'modest' price. The first batch of about a 1 000 have already arrived.

## WORLD CONTEST

"Norway will also provide two furrow ploughs to be used in the world ploughing contest next year and after the contest the ploughs will be given to agricultural colleges," said the ambassador.

In conjunction with the University of Zimbabwe, Norway was

looking at the possibility of setting up a timber research centre. Norwegian specialists had already visited the country and a reciprocal visit to Norway had been made by Zimbabwean specialists.

The SADCC had also received assistance from Norway in the form of a pledge of about \$6m for the microwave link between Francistown, Bulawayo and Livingstone.

The country was also financing SADDCC's transport secretariat.

Norwegian private organisations were also involved in the country's development projects and one of them, the Norwegian Save The Children, would arrive in Zimbabwe next month to set up office and start on environmental projects.

## SPECIALIST

A specialist from the Norwegian Agency for International Development will arrive next month to look into the possibilities of establishing joint ventures between companies in this country and Norway.

Trade between the two countries was not very substantial, with imports from Norway barely reaching a million dollars.

## TOP MEN SEE CHISVO DROUGHT CONDITIONS

Harare THE HERALD in English 27 Nov 82 p 7

[Text]

**RESIDENTS** of Chisvo communal area in Mudzi district were told by two deputy ministers this week that the water shortage they were facing also affected other parts of the country.

The Deputy Minister of Water Resources and Development, Cde Joseph Kaparadza, and the Deputy Minister of Local Government and Town Planning, Cde George Chinengundu, were speaking on Thursday after inspecting a parched dam and a well which served about 500 people.

Mudzi District Council had invited the two deputy ministers to witness the shortage of water.

Many women said they were having to sleep at the well in order to draw one, or just half a bucket of muddy water.

The cattle could no longer drink the muddy water in the dried out dam.

Councillor Simplicio Kaitano, and the headmaster of the local primary school Cde David Mudungwe, said the shortage threat-

ened the health of the children.

"The cry of the people in this area is that the Chisvo Dam should be made deeper and then walled, because even if it rains the water drains away," Councillor Kaitano said.

Addressing the gathering, Cde Kaparadza said that the drought had not been foreseen and plans had not been made accordingly.

"There are a thousand other places and small dams like Chisvo all over the country and the two ministries are working closely to alleviate the problem."

Unless the problems were brought to the notice of the ministries through the district councils, it would be difficult to find ways of solving them, he said.

There were 56 drilling rigs throughout the coun-

try but not sufficient to do all the work required.

"It will take time to remedy all the country's water problems", Cde Kaparadza said.

Cde Chinengundu said that the water situation in Chisvo had come to "a sad phase". It was not clean and it would affect the health of the young.

"If my ministry had known about this, we would have done something."

It was not enough to cite the problems of other areas, he said.

The Government had earmarked \$160 000 for Mudzi district for 1982/83 for water-related projects.

"Having seen your water problems, I am now going to report to my superiors, who will give them immediate attention", Cde Chinengundu pledged.



## NEW CROPS PROMISING AS DROUGHT ABATES

Harare THE HERALD in English 26 Nov 82 p 5

[Text]

**FARMING** is fast recovering from last season's drought and crop planting throughout the country is encouraging.

Agritex says this is the first of its fortnightly crop and livestock situation reports for this growing season.

Manicaland has had widespread rains last month and this month while in the Midlands it has been fairly widespread — though the province is still hot, dry and windy.

In Masvingo, Chibi did not have satisfactory rain last month and Zaka is hot and dry, as is Bikita.

October rainfall in Matabeleland North averaged 90 mm while in Matabeleland South it ranged between 50 and 114 mm.

While Mashonaland Central had heavy rains last month-end, Mashonaland West had just enough scattered rain and

isolated showers to start planting.

Mashonaland East has been hot, with low morning and evening temperatures. Rain has generally been erratic.

The maize situation is promising in some areas, but overall, plantings could do with more rain.

Commercial farmers in Manicaland have planted 70 percent of their fields and early plantings look good.

In the Midlands germination of maize is about 40 percent of the province has been good and irrigated stands are promising.

Germination in Masvingo has been generally good, but stress has been noted in some areas.

Maize in Matabeleland South needs rain, as it does in Matabeleland North where there are poor stands.

A good number of communal farmers in Mashonaland West have planted maize against indications that commercial farmers

have reduced hectares.

Shortage of seed has been reported in Mashonaland Central, where early planted maize is now well established. Wilting has been noted in most Mashonaland East areas.

The condition of livestock was reported as ranging from disappointing to encouraging.

As deaths were being reported in the Midlands, livestock condition in Manicaland has been assessed as being fair to good.

A lot of cattle are dying in Chibi, Masvingo, where the provincial situation is generally poor to fair.

Fewer livestock deaths are now occurring in both Matabeleland North and South.

Though livestock condition is good in Mashonaland West's commercial areas, an outbreak of quarter evil has been reported in the communal sector.

In Mashonaland East livestock condition ranges from poor to good.

The report covers the period ending last Friday.



## DETAILS ON REFORESTATION PROGRAM GIVEN

Harare THE HERALD in English 26 Nov 82 p C1

[Text]

**THE Forestry Commission and Agritex have donated more than 230 000 eucalyptus seedlings towards the National Tree Day ceremonies on December 4.**

The national tree day committee chairman, Mr Ian MacLennan, says the trees will be provided free of charge on a first come and first serve basis.

Although the seedlings will be given free in limited numbers to schools and charitable organisations, it will be up to recipients to collect them.

The list shows information on Forestry Commission nurseries in the order provinces, district, nursery and seedlings.

Mashonaland Central: Harare; Harare: 20 000; Mashonaland East: Mutoko; Mutoko: 6 000; Goromonzi: Seki council offices: 6 000; Marondera: Chibata Mahusekwa; 6 000; Wedza: Wedza;

6 000.

Manicaland — Mutare Rowa Training Centre; 6 000; Masvingo, Gutu, 6 000; Bikita, Chikuku, 6 000; Ndanga, Jerera, 6 000; Chib, Chib admin centre, 6 000.

Midlands — Charter, Nharira, 6 000; Gweru, 20 000.

Other Forestry Commission nurseries in Manicaland, Matabeleland and Midlands may have surplus seedlings' stocks after their own planting programmes have been finished.

Seedlings from Agritex will be available as follows: In Masvingo there are about 4 000 seedlings each at Mahonese, Chib; Chikuku, Bikita CA; Mupoko, Gutu CA; Jerera, Zaka CA; Mtirikwe, Masvingo CA.

In Matabeleland North various small quantities will be available at each of the six district nurseries, and a few will be ready for the ceremony as most are only about 75 mm tall.

In Mashonaland Central supplies will be available

from Bindura regional nursery (2 000); Madziva Office in Shamva (3 000); Chivesha nursery (900); Chombire's Youth, Sport and Recreation nursery (12 000); and at Mt Darwina nursery trees will be still too small.

The Zimbabwe Leaf Tobacco company has donated 4 656 seedlings to the Madziva Burley Tobacco Co-operative. At Domboshawa Farm nursery 90 000 seedlings will be ready, but some have already been earmarked for other parts of the country.

Mr MacLennan said: "We have got off to a good start and many people are very keen on planting trees." He called on people to plant as many trees as they could to make the National Tree Day a success.

Organisations seeking publicity or dignitaries to attend national tree day ceremonies should get in touch with Ode Joseph Tsora, of the Natural Resources Board, on Telephone 705661 ext 33 Harare.

## BRIEFS

BOREHOLES DRY UP--BULAWAYO--ALTHOUGH all boreholes in the Mberengwa district have been reconstructed, some of them are drying up because of the drought. The District Administrator, Cde Godwell Khosa, said that \$72 000 was spent on renovating the boreholes. A further \$75 000 is being spent on drilling 12 new boreholes. So far eight have been sunk, but three were dry. Cde Khosa said that although the three did not produce water, they had to be paid for. Ten more boreholes are to be drilled under the drought relief scheme. "We need more," Cde Khosa said. "The drought relief committee here had requested 78 new boreholes to reduce the walking distance to the nearest borehole to three kilometres. They were told by the provincial committee that this would be almost impossible to achieve." The \$46 000 allocated to reconstruct a dam on the Mundi River would not be enough. "We are now planning to use the money to fence other dams. But this largely depends on the response to a letter we just received from head office which says that further bids for reconstruction projects will be considered. "If we are given additional funds to reconstruct the dam, we will do so." He said that the district would have liked to build new dams but it did not have the funds. The Ministry of Water Resources and Development had, however, asked the district to choose sites where new major dams could be built. [Text] [Harare THE HERALD in English 24 Nov 82 p 7]

DROUGHT SCAPEGOATS--HARARE--Zimbabwe's ancestral spirits, angered by the disunity in the country, are not sending rain, according to the president of the Zimbabwe True N'angas' and Spirit Mediums' Association, Dr Kenneth Chinata. About 200 N'angas from six southern African countries, including Zimbabwe, would hold a meeting in Chivhu on Saturday to pray, after which Zimbabwe could expect rain, he said. Dissident activities were responsible for the drought. "We are going to help the government by asking for rain. We know who stopped the rain but we are not going to mention whom." The N'angas had held meetings in Rusape, Gokwe, Harare, Buhera, Nyazura and Zvishavane to determine which area had the best N'angas. At the final meeting, in which thousands of people were treated free of charge, Zimbabwe had emerged as the winner, said Dr Chinata. At the meeting in Chivhu the N'angas would discuss, among other things, how to bring about peace in the country, help disabled war victims and how to help the police in deterring crime. Eighty percent of Zimbabwe's crops are drought-threatened and grazing is in a poor condition in most parts of the country. A Department of Agriculture report says large areas of the country are "very dry" and the water supply low in all areas. [Text] [Johannesburg THE CITIZEN in English 8 Dec 82 p 9]

# ENVIRONMENTAL PROTECTION IN MOSCOW AREA COAL BASIN DISCUSSED

Moscow UGOL' in Russian No 10, Oct 82 pp 22-23

[Article by engineers V. I. Kabanov (association "Tulaugol'") and V. M. Igoshin (VNIIOSugol'): "Environmental Protection in Moscow Area Coal Basin"]

[Text] The territory of the Moscow area basin is fairly uniform in the nature of the soil cover. The dominant soils are leached out and podsolized chernozems, formed from carbonate loess-like loams. Gray forest soils and sod-podzol are encountered less often. The latter are confined to alluvial sandy deposits.

The soil-climate conditions of the Moscow area coal basin are favorable for cultivating valuable agricultural and commercial crops. Horticulture and vegetable growing have become widespread here.

Coal extraction currently in the Moscow basin is being done by the associations "Tulaugol'" and "Novomoskovskugol'," which include 42 mines (administrative units), 4 open pits and 2 enrichment plants. The basin annually extracts 25 million T of coal and moves 40-41 million m<sup>3</sup> stripped rocks to dumps at open pits and 3 million m<sup>3</sup> of surrounding rock in mines. The enterprises for coal extraction annually disrupt about 200 ha of farm lands, 140 ha of them by open pit mining. The natural landscape significantly changes during work: cavernous depressions develop, internal and external dumps of rock during open pit extraction of coal, avalanches, troughs in the surface and rock dumps with underground extraction which not only occupies farm lands, but also contaminate the areas adjoining them, and alter the natural regime of the ground water and their quality composition.

As a result of extracting coal by the underground method in the Moscow area coal basin, the rock dump of the mines occupy 542 ha of land. A total of over 70 million m<sup>3</sup> of rock has been stored in the rock dump.

With preliminary drying of the fields and during their operation, a total of 398 million m<sup>3</sup> of water is discharged into the surface reservoirs. A total of 298 million m<sup>3</sup> of water is discharged from the water-reducing wells which in quality composition is classified as conditionally clean.

In addition to alienation of the land areas and contamination of the water basins, the coal-extracting enterprises also contaminate the atmosphere. All of this inflicts definite damage on the environment.

The Moscow area coal basin is taking measures aimed at eliminating undesirable consequences which develop during mining operations. For example, starting in 1964, land disrupted by open pit mining operations was recultivated, somewhat later, the underground. During this time over 3,200 ha of disrupted land was recultivated and transferred to agriculture and forestry. In this case recultivation was done: by applying a fertile layer of cover or loess-like loams 30-120 cm thick to the prepared areas, humus layer of soil and by using mineral fertilizers; by direct use on the recultivated areas of potentially fertile rocks with the use of land reclamation measures (liming, the use of fertilizers, introduction of land reclaiming crop rotation), as well as planning of land disrupted as a result of underground mining operations without removal and with preliminary removal of the fertile layer of soil and its subsequent return.

All the work at the open pits is done by the Administration for Land Recultivation, and at the mines by specialized sections for recultivation of enterprises "Tulshakhtosusheniye" and "Novomoskovskshakhtosusheniye." These organizations are equipped with the necessary mining-transport, road-construction and agricultural equipment.

The outlays for recultivating 1 ha of land disrupted by open pit mining are about R 12,000. The cost of recultivating 1 ha of land disrupted during underground mining operation is about R 2,000. The quality of recultivated lands is good.

In 1980, 531 ha of disrupted land was recultivated in the basin and transferred to the farmers, and 492 ha of them were used for pasture and other agricultural crops. The problem of using wastes of extraction and reprocessing of coal for reduction of the negative effect of rock dump on the environment is being successfully solved in the basin.

The situation in this respect has been set up well at the enrichment plant of the open pit "Kimovskiy" from the association "Tulaugol'." From 1968 to 1980, 696,000 T of clay and 521,600 T of sulfur pyrite were obtained from the waste at this plant. Firebrick of brands M-75, M-100, and M-125 are made from the clay, and sulfur pyrite is used as a raw material for obtaining sulfuric acid. The mine rocks which are extracted at the same time are used for fulfilling the worked spaces. Every year 200,000-250,000 t of rock from the mine rock dumps are used to fill the bed in constructing roads. The association widely uses block-free working of the extraction shafts which makes it possible to significantly reduce deformation of the surface.

The mine water is discharged into the basins of the Upa, Don and Pron' rivers. The discharge of mine waters by the enterprises of the coal industry is a significant supplementing to the surface water resources of the region. This is graphically manifest when it is compared with the minimum limiting quantities which have significance for water management.<sup>3</sup> Thus, the minimum calculated 30-day consumption of the Upa river is 8.4 m<sup>3</sup>/sec, while the total discharge into it of mine and drainage waters is 4.13 m<sup>3</sup>/sec, or over 49 percent.

For the Pron' and Don rivers within the limits of the Tula Oblast, the volumes of drainage and mine waters discharged into them are double the minimum limiting expenditures. At such rivers as the Lipnya, Alkovka, Olen', Lebyagoshka, Rossoshka, Uperta, Markovka, Yemanivka, Bobrik, and Shivoron', the percentage

of mine and drainage waters in the minimum run-off is more than 90 percent. The mine waters and the waters of the water-reducing wells serve as the main source of water supply for a whole series of industrial enterprises.

The conducted calculations indicate that the discharge of mine and drainage waters is an important source for supplementing the surface water resources of the region. Consequently, in calculating their chemical composition and the presence of specific ingredients, the discharge of mine waters should be included in the comprehensive plans for the use of water resources developed by the organization of the USSR Ministry of Water Management.

Purification of waste water of the enterprises of the coal industry is very important, and a lot of attention is focused on it. Discharge of polluting waters in 1980 as compared to 1979 decreased in the basin by 4.5 million m<sup>3</sup>. Purification of mine and quarry waters is done in settling tanks-ponds. About 6 million m<sup>3</sup> is exposed to biological treatment.

In characterizing the level of environmental protection in extracting coal in the Moscow area coal basin, it is necessary to note that the majority of aspects of this problem are currently being successfully solved.

The VNIIOsugol', State Scientific Research Institute of Land Resources of the USSR Ministry of Agriculture and the Moscow State University are giving a lot of help to the associations "Tulaugol'" and "Novomoskovskugol'" in solving questions of environmental protection.

It should be noted that in addition to the attained successes, a comprehensive approach has not yet been guaranteed to solving the general tasks of environment protection in extracting coal in the basin. This is explained both by the lack of a unified comprehensive program of research, and by the low degree of study and the absence of recommendations for a number of questions. They include: recultivation of services formed by sulfide-containing rocks, its effective methods and technical resources; recultivation of rock dumps and ridge dumps of mines, dimensions and degree of negative effect of the dumps on the adjoining territory; change in the water regime in zone of operation of the coal-extracting enterprises and methods of controlling them; improvement in the condition and further use of reservoirs with acid waters formed as a result of open pit mining operations, as well as reservoirs formed during drainage operations at the mines; possible use of rock in the mine dumps and extracted from the mines.

The solution to these problems will make it possible to pass to implementation of a comprehensive program of environmental protection during extraction of coal in the Moscow area basin.

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9035

CSO: 5000/21



# INDUSTRIAL DEVELOPMENT CAUSES AIR POLLUTION IN ARMENIA

Yerevan KOMMUNIST in Russian 10 Oct 82 p 2

[Article by M. Vermishev, head of the sector of gas purification of Armnipro-tsvetmet, candidate of technical sciences: "For Cleanliness of the Air"]

[Text] The problem of protecting the air basin in Armenia is urgent and acute. Pollution of the atmosphere by emissions of industry and automobile transportation has reached dimensions in which a stressed ecological situation has developed in a number of regions of the republic.

This situation was objectively governed by the high rates of economic development of republic and its natural-climate features. In the last 50 years, industrial production of Armenia has increased 366-fold (for the USSR as a whole, 128-fold). Such sectors as chemical, nonferrous metallurgy, industry of construction materials have reached a high level of development. They are the main sources of atmospheric pollution. The number of cars has increased 100-fold, from 327 in 1932 to many tens of thousands now.

In the national zoning for meteorological factors, the territory of Armenia is classified as a zone of high potential for atmosphere pollution. This means that the conditions of its relief and climate do not promote scattering of harmful admixtures. This results in their accumulation in the atmosphere of air and relatively lengthy effect on the living organism. According to the adopted classification, the zone is considered very unfavorable for the arrangement of industrial enterprises.

The situation in the republic is aggravated by high population density and concentration of industry. Half of the population (including 33.7 percent in Yerevan) lives in a area occupying 10 percent of the republic territory, and the main industrial production is concentrated here.

The most dangerous levels of pollution of the atmospheric air have been recorded in the cities of Yerevan, Kirovakan, Alaverdi, Razdan and Ararat. Zones of harmful effect of polluted atmosphere of these cities cover vast territories, in a radius of 10 km, and sometimes 25-30 km.

Purposeful and coordinated action to protect the air basin from pollution is needed in the situation which has been formed by this problem. Successful solution to the problem depends a great deal on the correct organization of atmosphere-protecting activity, improvement in the method of planning and control of pure atmospheric air, and their information support.

Pollution of the air basin is a controllable factor. The achievements of science and technology make it possible to purposefully eliminate or reduce to possible limits the influx into the atmosphere of harmful industrial emissions.

A feature of the problem is its regional nature. At the same time, control of protection of the air basin is currently done on a sector principle. This results in separateness of the information between individual departments and decrease in efficiency of the conducted measures on a territorial scale. One should also take into consideration that 40 percent of the industrial production in the republic is done by industry of union subordination. Under these conditions, organization in the republic of a territorial administration in the field of protecting the air basin acquires especial importance. In a broad sense, this administration presupposes the creation of a single data bank based on departmental information, correlated on a regional basis, development of planned indicators for purity of the air, and selection of methods and resources for attaining them.

The criterion for quality control for the air medium is the indicator of purity, the ratio of actual concentrations of harmful substances in the near-earth layer of the air to the standard. Currently the level of atmospheric pollution is evaluated based on measurements made by the service of monitoring in several observation posts of the city. However, this information yields the most general idea about the condition of the air. It cannot be extended to the entire territory of the city, and does not make it possible to evaluate the contribution of individual enterprises which discharge admixtures of the same name into the atmosphere to the established air pollution. There is still no monitoring of pollution of the atmosphere by a whole series of specific harmful substances: compounds of lead, arsenic, zinc, copper and others. Pollution governed by the harmful effect of combinations of some admixtures is not taken into consideration.

Planning of atmospheric-protective measures is usually reduced to reduction in the discharge from an individual enterprise without consideration for the effect achieved in this case, decrease in the total level of air pollution which is the result of the combined effect on the atmosphere of emissions of many enterprises. This practice of planning was formed as a result of the sector approach to the problem, and also the lack of the necessary information. All of this urgently dictates the need for improving the methods of planning and control of the quality of the air medium.

In this respect the new methods of evaluating the level of air pollution for a large number of sources and discharged harmful substances which were developed on the basis of mathematical modeling of the process of scattering of admixtures in the atmosphere are especially timely and valuable. Calculations of pollution are made on a computer and make it possible to use the assigned parameters of emissions and meteorological conditions to obtain very important information, the value of near-earth concentrations of harmful substances at any point of the locality and contribution of individual sources (enterprises) to the background atmospheric pollution. The calculations take into consideration the automobile transport pollution of the air. The use of the methodology for evaluating the level of atmospheric pollution will make it possible to establish assignments for decrease in emissions by sources of pollution in a regional scale, to make a preliminary sanitary-hygienic evaluation of the air-protection measures, to plan their final result, the attained indicator of purity of the air medium.

In order to control the quality of the air medium, plan and predict its condition, it has now become urgently necessary to make an evaluation of the current level of atmospheric pollution in the cities of the republic and to compile on its basis cadasters of the air basin of the territory exposed to pollution. Evaluation of the level of atmospheric pollution must include information regarding all the sources and emissions into the atmosphere, zoning of the territories according to intensity of pollution with details about the affected objects, contribution of individual sectors and sources to air pollution. The obtained information will make it possible to link and correlate the degree and nature of change in the entire complex of natural elements under the influence of industrial emissions with the detected levels of atmospheric pollution. This will also make it possible to evaluate the natural and economic damage based on a comparison of the condition of objects in the polluted and control (clean) zones.

Especial attention must be focused on the ecological substantiation of the projects for planning and build-up, as well as the development and arrangement of new industries. The data of the cadasters of the air basin which determine the existing and long-term background of atmospheric pollution of the examined region will be of great benefit in this case.

The strategy for activity for protection of the air basin is determined by the social goal, universal observance of the maximum permissible concentrations of harmful substances in the atmospheric air.

The standard indicators for purity of the air place strict limitations on the amount of industrial emissions. It is very difficult to reach them in polluted zones. Therefore the indicators for purity of the air should be set in stages, in mutual correlation with the entire system of indicators of the national economic plan for social and economic development of the republic. Depending on the acuteness of the developed situation, the decrease in harmful emissions into the atmosphere must be obtained by improving the effectiveness of gas-purification structures, change in technologies, reprofiling of the enterprises, and in the extreme case, closure of individual industries.

The standardization of harmful emissions into the atmosphere, establishment of maximum permissible emission on the scale of cities must become an important stage in normalizing the air medium in the republic.

Studies on the set of tasks of territorial administration for cleanliness of the atmospheric air should be concentrated in a single scientific-practical center outside departmental control. The results of the studies must become the basis for adopting planned and administrative decisions in the field of protecting the air basin of the republic.



SUDDEN SNOWSTORM STRANDS TRAVELERS, SHEEP AT ISSYK-KUL

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Nov 82 p 4

[Article by correspondent P. Laptev: "Bravery Against the Elements"]

[Text] The details of the incident are just now becoming known.

A "santash" tore in from the eastern side, over the mountain ranges, and an "ulan" came in from the west. These are the names given to two raging winds over Lake Issyk-Kul which have been fighting over the lake at enormous speeds since time immemorial, frequently causing storms and even water-spouts. This time an arctic cyclone intruded itself into the epicenter of the two giant air currents.

The Frunze-Przhevalsk road, which skirts Issyk-Kul on the north, was experiencing its usual heavy traffic in both directions. A map would show that the health resort town of Cholpon-Ata is situated about halfway between Przhevalsk and Frunze. Drivers and passengers usually stop here for lunch and a little rest. But many of them were unable to get to Cholpon-Ata that day: A snowfall stopped the vehicles about 30 km away. An enormous traffic jam about 60 km long formed in the course of an hour.

Snow removal equipment was transferred to the vicinity of Cholpon-Ata from Rybachiy, Przhevalsk and Frunze. It took 2 days to plow the road and clear the bottleneck. The people that were stranded en route by the winds of the bad weather were not left unattended. Local residents of towns along the road--Semenovka, Kurskoye, Chon-Sary-Oy and Konezavod--invited the disaster victims into their homes.

Two hundred flocks of sheep found themselves cut off from the central farmsteads and supply bases. The farms organized special detachments that punched their way to the locations of the flocks any way they could.

Machine operator Asanbek Askarov of the Rybachiy Construction and Installation Administration was clearing the highway when he learned that three flocks were imprisoned by the snow at the foothills of the mountain range. On his own initiative the machine operator decided to punch his way to the flocks, and so during the night he took to the wheel of his bulldozer. He made the 4 kilometers by dawn. When he was told to take a rest, Askarov staunchly refused:

"I need to go over the road one more time, because the snow is deep in some places and the cars could get stuck."

Here is what Petr Mikhaylovich Khodos, first deputy chairman of the Kirghiz SSR Council of Ministers and chairman of the government disaster relief commission, had to say:

"In a time of difficult trials, the fraternal republics came to the rescue: Helicopters were transferred from Kazakhstan and Tajikistan to deliver feed, medicines, food and all necessities to the remote winter cabins."

Life is now returning to normal in the regions that had been subjected to the snowy attack.

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USSR

#### BRIEFS

WATER POLLUTION MONITORING--Dushanbe--The first hydrochemical testing area in Central Asia, where hydrologists will continually keep watch on the cleanliness of underground rivers, has been founded in the Vakhsh valley, a major agro-industrial zone of south Tajikistan. Tens of boreholes have been drilled in the testing area, where powerful flows of underground waters pass, and their quality is analyzed in the laboratory. At the slightest pollution of the water with industrial wastes, the data on this will be sent to town and settlement Soviets, leaders of enterprises and construction and transport organizations so that steps can be taken. [Moscow Domestic Service in Russian 0100 GMT 29 Nov 82--L]

CSO: 5000/29

NORDIC MINISTERS WANT REDUCTION OF LEAD IN GASOLINE

Helsinki HUFVUDSTADSBLADET in Swedish 17 Nov 82 p 10

/Text/ The lead content of gasoline should be reduced to 0.15 milligrams per liter within two years and in that way make the environment cleaner, especially for children in traffic.

The Nordic environment ministers are making this recommendation in conjunction with the Nordic Council's meeting in Mariehamn, which began on Sunday and will conclude on Wednesday.

This means in respect to Finland that the lead content will be reduced from 0.4 milligrams per liter, which, with Neste in the lead, was voluntarily accepted. Sweden in particular has gone farther with the Nordic plan in this matter and already has a lower lead content in gasoline, and is experimenting with leadfree gasoline.

At the ministers' meeting the goal of a completely leadfree North within 15 to 20 years was set.

Matti Ahde, minister of interior /Finland/, and Olli Ojala, the chief of the ministry's environment division, consider this as somewhat optimistic, and the total elimination of lead from gasoline has to be achieved in cooperation with the refineries and the automobile industry.

The recommendations will now be sent to all the parties involved for study.

Lower Noise Level

The parties will also in this same study be able to formulate a position in regard to the recommendation that traffic noise be reduced to a maximum 80 decibels.

This would affect all vehicles, including heavy traffic.

At present Finland has a 92 decibel level and a goal of reducing it to 88 decibels in the next few years.

The question of the acidity of our lakes and eliminating the heavy discharge of sulfur is being referred to the prime minister level.

In this regard one of Olli Orjala's comments was that if the North as an entity is to be able to demand better protection of the environment from industrial discharges coming from Europe, we must first first see that we ourselves meet the standards domestically.

The environment ministers took up, in addition to the regular agenda, the employment aspects of environmental policies. The objective is to emphasize the positive aspects of environmental protection as far as employment is concerned.

Orjala points out that up to now the problem has not really been looked at from this aspect. First of all, the utilization of technology in protecting the environment must be investigated and mapped out at the bureaucratic level.

In regard to the environment ministry "being established in Finland", Matti Ahde could inform his Nordic colleagues that it is on the way and that planning questions will be under that hat.

6893

CSO: 5000/2522

## NEW ENVIRONMENT MINISTRY TO BE GIVEN WIDE RESPONSIBILITIES

Helsinki SOSIALIDEMOKRAATTI in Finnish 3 Nov 82 p 1

[Article: "Finland to Receive Wide-Ranging Ministry"]

[Text] The country will have a comprehensive environmental ministry next year. On Tuesday the Parliamentary Constitutional Committee approved MP Matti Luttinen's (Social Democrat) bill as the basis for its report after taking a vote in the first deliberation of this issue.

However, in the point-by-point deliberation it was decided that the Water Administration will remain in the Ministry of Agriculture and Forestry. The same also goes for the Surveying Administration even though the environmental ministry committee led by Committee Chairman Erkki Pystynen (Center Party) unanimously proposed that it be transferred to the new ministry. On the other hand, planning, construction, and housing activities will be placed under the jurisdiction of the ministry to be established on 1 October 1983.

The Parliamentary Constitutional Committee will have its report on the establishment of an environmental ministry completed next week. The Finance Committee is preparing a report on the offices to be established by and transferred to the ministry. They will be established by a separate statute.

The Constitutional Committee first voted between Luttinen's and Conservative Party member Pentti Sillantaus' initiatives. The Center Party and Christian League member Muroma abstained from this vote.

When a vote was taken between Luttinen's bill and the government's proposal concerning an environmental ministry of limited scope, Luttinen's bill won by a vote of eight to four with Conservative Party representatives abstaining.

The committee led by MP Pystynen decided in August to propose the establishment of a far-reaching ministry. However, the view of the center factions, which would mean an environmental ministry with limited scope, won out in the government.

In the parliament the leftwing as well as the Conservative Party proposed bills for the establishment of a comprehensive ministry. However, the Conservatives demanded a separate clarification of the position of the Water Administration. It is possible that the fate of the Water Administration will be considered again in the original committee.

## AUTHORITIES TAKE ACTION AFTER REPORTS OF PROBLEMS WITH PCB

Helsinki HELSINGIN SANOMAT in Finnish 2 Nov 82 p 10

[Article: "PCB Instructions From Authorities"]

[Text] Authorities have taken urgent actions in the event of accidents involving the poison PCB.

In accidents that have occurred recently PCB has made its way into the environment in connection with condenser explosions, for example. Attention has been directed to the fact that certain PCB compounds released in fires, among other things, are so-called ultra- or super toxic.

The Interior Ministry has issued instructions to local fire departments in the event of PCB accidents. The Labor Safety Administration has issued a bulletin with job safety in mind, Industrial Insurance has compiled its own safety bulletin for the purpose of assisting officials, and fire officials are now mapping out the locations of condensers and transformers containing PCB.

In the instructions it states, among other things, that in the event of a PCB accident the facilities in question must be immediately evacuated.

It has been learned from a Finnish translation of the West German paper BRAND-SCHUTZ that even as late as the beginning of the 1960's it was proposed that PCB be used in chewing gum for children.

Regarding the dangers of the impurities contained in PCB it stated that in 1976 2 kilos of TCDD contaminated approximately 2,000 hectares in Seveso, Italy and the local population had to be evacuated. A fire that occurred in Binghamton in the USA in 1981 spread compounds to an apartment building and the building is still condemned for use, states the Industrial Safety Commission.

Until recently there has been no information or knowledge in Finland on the extreme danger of these compounds. There are slightly different understandings of even the number of condensers containing PCB. The treatment of PCB waste has not yet been organized.



### Only Compressed Air Equipment in Event of Fire

In the instructions issued by the Interior Ministry to the local fire departments it states that the Stromberg Company delivered approximately 250 transformers that used PCB as a coolant in the years 1957--1977. Condensers containing PCB were manufactured in the years 1950--1980. For example, Nokia has manufactured approximately 100,000 condensers and other manufacturers are PSO, Siemens, Bosch, and Asea.

PCB-condensers are principally located in all large buildings as well as in residential buildings in which there are business establishments, states the ministry. There is no PCB in new condensers and transformers manufactured in Finland.

If there is reason to suspect that PCB has been subjected to heat in connection with an electrical accident or fire, such a facility must immediately be disconnected from the electrical source, the facility must be evacuated and closed up, and the air conditioning system must be turned off.

According to the instructions such a facility can only be entered by fire-fighting personnel with compressed air equipment and protective suits.

If an accident has occurred, contact must be made with labor safety officials, who after conducting measurements will determine whether the facility can be used, state the instructions.

### Facilities Containing PCB Must Be Recorded

According to the Labor Safety Administration PCB-compounds known primarily to be an environmental toxic represent "a significant danger in certain accidental situations in places of employment also". Certain disintegration products cause the so-called chlorifin disease, damage to the liver and central nervous system, and in some instances death.

The recognition and identification of facilities posing a danger are of primary importance according to the Labor Safety Administration. The Labor Safety Administration estimates that there are approximately 120,000 large PCB-condensers and more than 250 PCB-transformers.

A clarification as to whether facilities contain PCB-compounds must be made at job sites. PCB-electrical facilities must be recorded and this information must be given to local fire departments. These facilities must be regularly maintained and PCB-electrical facilities must not be overloaded, states the bulletin.

The risk of an accident can be reduced by making the structural fire safety of an electrical facility more effective. Transformers and condensers can be replaced with new ones in which there is no PCB and the PCB contained in transformers can be replaced with a different type of transformer oil.



If there is a fire or an explosion in an electrical facility, the Labor Safety Administration urges that the same procedures be executed as those recommended by the ministry to local fire departments. If, on the other hand, PCB has been subjected to heat, the facilities must be cleaned up using sawdust, for example.

Waste created as a result of a PCB accident is considered as hazardous waste. This waste must not under any condition be taken to a dump and it must not be burned, and contact should be made with local waste treatment authorities for instructions regarding its disposal, states the instructions issued by the Labor Safety Administration.

According to the rescue section of the Interior Ministry there is no certainty as to whether it is worth-while changing facilities containing PCB. The storage and destruction of PCB waste are "an urgent international question, which must be resolved in the near future".

10576

CSU: 5000/2513

# TREATMENT OF HAZARDOUS WASTE STILL CAUSING PROBLEMS

Helsinki HELSINGIN SANOMAT in Finnish 5 Nov 82 p 1

[Article: "Four Temporary Waste Storage Sites Given Up"]

[Text] Oulu--Suomen Ongelmajäte Oy [Finnish Waste Treatment Company] has for the time being given up the construction of temporary storage sites in Turku, Kuopio, Vaasa, and Oulu. The construction of storage sites, which is considered to be extremely important by industry, would have cost a total of 12 million markkas. The City of Oulu had already set aside a 1.5-hectare lot in Rusko for the storage of hazardous waste.

In the opinion of the large producers of hazardous waste the storage of waste has now been placed on their shoulders. The situation is especially urgent in Oulu where the burning of hazardous solvents and oil has been discontinued at the Polvikangas dump 12 kilometers outside of the city limits.

Now tens of thousands of liters of highly flammable solvents in Oulu alone will have to be stored in temporary and sometimes questionable storage facilities at industrial sites. The temporary storage facility for hazardous waste to be built in Rusko would have taken the pressure off industrial waste storage sites since the waste treatment plant in Riihimäki will not become operational until the end of 1984.

"The construction of temporary storage sites was cancelled due to a shortage of money. The temporary storage sites will be compensated for by a transport system in which transport companies will take care of the collecting of hazardous waste. The larger quantities will be transported either by rail or semi-trucks to Riihimäki," stated Technical Director Matti Vattulainen of the Waste Treatment Company.

"Temporary storage facilities would have been exceptionally expedient, for example, for small laboratories, which produce 100--1,000 liters of hazardous waste annually," stated Plant Chief Pasi Niva of the Medipolar Pharmaceutical Plant.

The large producers of hazardous solvents in Oulu are Medipolar, the Oulu Company, which processes wood, and several laboratories located in the city, of which the largest is Oulu University Central Hospital.

The laboratory at Oulu University Central Hospital produces 2,500 liters of petroleum ether annually. "For the time being, we are storing petroleum ether in the basement to await shipment to Riihimäki," states Matti Vuolteenaho, technical director of the hospital.

The Medipolar Pharmaceutical Plant produces 30,000 liters of highly flammable solvents annually. The plant cannot use the waste solvents in its processing again so that it must be stored. Medipolar will have approximately 100,000 liters of hazardous waste by the end of 1984.

#### Open Burning of Hazardous Waste Discontinued

The majority of oil- and solvent waste as well as organic hazardous waste was burned at the Polvikangas dump in Oulu until last summer under the supervision of the City of Oulu. The weekly open burning of solvents was discontinued in the summer when a treatment plant for waste oil was completed for the city. However, hazardous solvents and organic waste cannot be treated by the plant.

"According to the new law hazardous waste does not belong to the city. With this waste in mind we set aside a lot for the temporary storage of hazardous waste," stated City Engineer Pauli Mahkonen.

The largest user of the burning site at Polvikangas last year was the Oulu Company, which destroyed approximately 400,000 liters of solvents mixed with turpentine. In addition, the Oulu Company dumps 3,000 kilos of waste containing mercury every year at its own site. In the future mercury waste will be transported to the waste treatment plant in Riihimäki.

"There is now reason to be careful with the storage sites since waste storage facilities are increasing rapidly in Oulu. The situation will not be alleviated until the completion of the waste treatment plant in 1984," stated Aatos Oksanen, city director of hygiene.

"The storage of highly flammable liquids is dangerous. On the other hand, other unknown substances frequently mixed in with the solvents pose their own risks," stated Pekka Vuononvirta, city health officer.

In Vuononvirta's opinion legislation has regrettably progressed faster than practice with respect to hazardous waste.

10576

CSO: 5000/2516

## AUTHORITIES CONCERNED OVER AUTO EXHAUST POLLUTION

### Excess Levels Registered in Oslo

Oslo ARBEIDERBLADET in Norwegian 7 Dec 82 p 12

[Article by Inger-Torunn Sjøtro]

[Text] The concentrations of exhaust fumes in Oslo are too high. In some streets the level is twice as high as the limit. While emission of sulfur dioxide is on the decline, auto exhaust emissions are increasing. Auto exhaust fumes are responsible for 90 percent of carbon monoxide emissions. This appears from a report prepared by the Norwegian Institute for Air Pollution, NILU.

The report is based on measurements taken in 1979. This represents the first big measurement of air pollution in the capital. The work was done in response to a request from the State Pollution Control Agency.

The study shows that the air in Oslo is full of a number of dangerous substances, such as sulfur dioxide, nitric acid, carbon monoxide, lead and carbon particles.

Researcher Knut Erik Grønskel of NILU told ARBEIDERBLADET that the study shows that an increasing amount of air pollution in Oslo is caused by automobiles. However Oslo's situation is not unique. The same development can be seen in a number of other cities.

### Twice as High

There is an advisory limit on carbon monoxide of 10 mg per cubic meter in an 8-hour period. In several streets, among them St. Olavsgate, Radhusgata and Torggata, twice that much carbon monoxide was measured. It is estimated that 3-4000 people can be found within the areas where carbon monoxide levels exceeded the limit over an 8-hour period.

### Fewer Cars

What solutions did the research scientist suggest?

"The most obvious step would be to reduce the number of cars. This in turn would lead to a better traffic flow. One result of a better traffic flow would be a reduction in exhaust emissions. It is especially in streets with a poor flow of traffic that one finds the larger exhaust concentrations. New engines that produce less carbon monoxide emissions will also have a positive effect."

#### Heating Plants

Gronskel added that the building of more central heating plants could lead to a reduction in sulfur dioxide emissions. A large amount comes from private oil-fired facilities with low smokestacks. A central plant would be able to build higher smokestacks that would release the smoke higher up.

#### Diesel Exhaust Seen as Carcinogenic

Oslo ARBEIDERBLADET in Norwegian 9 Dec 82 p 11

[Article by Inger-Torunn Sjøtro]

[Text] Are exhaust fumes from diesel-powered cars more carcinogenic than those from gasoline-powered cars? That is one of the questions research scientists are now giving a great deal of attention to. Researcher Tore Aune of the State Public Health Institute says that there is much to indicate that emissions from diesel-powered cars can increase the risk of cancer.

Aune has done a lot of work on the health consequences of air pollution. He does not conceal the dangerous substances we inhale daily, but he warned against overdramatizing the situation:

"Even living in a street full of exhaust fumes cannot be compared with the danger one is exposed to if one smokes cigarettes," he said.

#### Diesel Engines

In recent years a lot of research has been done in an effort to find out if using diesel fuel is more carcinogenic than using gasoline.

"There is much to indicate that there are large quantities of tiny particles in emissions from diesel-powered cars. Chemical substances attach themselves to these particles. The particles are drawn into air passages and are a contributing factor in causing cancer of the lungs," said Aune. He added that smokers have little chance of getting rid of these particles. The fine cilia found on the inside of air passages which are supposed to protect us from pollution have been paralyzed in the case of smokers.

## Winter Problem

Does air pollution vary with the seasons?

"There is no doubt that air pollution is highest in Norway during the winter. That is not just because we are then forced to do more heating for climatic reasons, thus producing more smoke. When the air is cold, pollution remains close to the ground and it is not hard to detect the haze lying over the city. Seasonal variations have led to suggestions in Norway that semiannual limits be set to indicate the danger zone with respect to air pollution."

Around 20,000

How many people are bothered by air pollution? An exact figure is hard to give. Aune referred to scientific reports that show that 5 1/2 [as published] of the Oslo population suffer from so-called obstructive lung diseases such as asthma, bronchitis and emphysema. That is a total of around 20,000 people. The health situation of these people will be made much worse because of air pollution. In addition there are children, older people and heart patients.

What are possible ways of reducing air pollution?

"It is no problem to make cars 'cleaner.' That means making them so that they emit less exhaust than they do now. It is interesting to note that it makes a difference to do something. Both reducing the sulfur content in heating oil and reducing the lead content of gasoline have had very positive effects."

6578

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GOVERNMENT WARNS SAAB: EXCESSIVE EXHAUST EMISSIONS FROM CARS

Stockholm DAGENS NYHETER in Swedish 4 Dec 82 p 10

/Text/ The board of the Environmental Protection Agency decided on Friday to issue a warning to SAAB regarding inadequate exhaust systems on certain models. It involves the 1982 and 1983 SAAB EMS and GLE which do not meet the current requirements on purifying exhaust fumes.

The discharge of nitric oxides exceeds the level permitted by the regulations which have been valid since 1972 and went into effect with the 1976 automobile models. SAAB's own investigation of these models also indicates high discharge of nitric oxides.

The deficient emission controls on the SAAB cars was discussed on 25 October. The board decided at that time to table the matter since SAAB had promised shortly before the meeting to improve the process.

In a situation like this the Environmental Protection Agency can chose between recalling the emission certificate or issuing a warning. If the emission certification is withdrawn, a prohibition on selling the models involved follows. But if the Agency presumes that the manufacturer will correct the situation after a warning, the agency may be satisfied with such a step. A warning means that a company is being prodded, and if it does not improve its performance, the emission certificate can be withdrawn if the violations continue.

The Environmental Protection Agency will now issue a warning to SAAB Scania AB. Whether measures at this stage will stop with a warning depends on the company declaring at a meeting of the Environmental Protection Agency that changes will be made as soon as possible in the production of the 1983 models, so that they will henceforth meet the rules in force.

"Not Serious"

"We don't regard the warning from the Environmental Protection Agency as too serious. It is a question of a difference in judicial interpretation."

That is what Sten Wennlo, chief of SAAB's passenger car division, tells ITT.

"As we look at it, the rules on which the Agency is relying do not become valid until 1985. This is not just SAAB's view but that of the whole automobile industry," Sten Wennlo says.

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## ANKARA'S ENVIRONMENTAL SHROUD EXPLORED

### Polluted Air Affects Fetuses

Istanbul CUMHURIYET in Turkish 18 Nov 82 p 12

[Article in three installments by Fatih Gullapoglu: "The Capital's Black Shroud"]

[Text] Ankara's air pollution problem, which today poses a fatal threat to its inhabitants during winter months, started in the 1960's. Nearly 20 years have elapsed since then, and various meetings have been held during that time to solve the problem, which has also been an item on the agenda of several governments and the parliament. But no specific decisions have been taken toward the solution of the problem. On the contrary, twisted minds, political ambitions and speculators' addiction for more profits have filled Ankara--which sits at the bottom of a topographic basin--with mounds of concrete, resulting in extensive pollution.

On 11 and 12 January 1982, the atmosphere of Ankara--from where the 50 million citizens of Turkey are governed--denied its inhabitants their "right to breathe." In other words, hundreds of thousands of citizens struggling in this city have been virtually abandoned to die by a group of people who do not number more than 300 to 500.

Every winter, when Ankara's air is four to five times as dirty as the maximum pollution level allowed by the World Health Organization, everyone says something about air pollution in Ankara, but as soon as summer comes the issue is forgotten. As part of this annual ritual, commissions are set up and studies are launched toward the solution of the problem.

Our research shows that all the proposals that are being put forth today were made and placed in government archives between 1967 and 1968. We believe that there is no one who cannot see that from that point on the solution of the problem rested on "government resources and decisions."

Before we go on to discuss the reasons behind the pollution of the capital's air and ways to solve the problem, let us hear from the experts how air pollution has adverse effects on people of every age, including fetuses in their mothers' wombs and schoolchildren.

### Babies Die Before Birth

Dr Sevim Balci of the Department of Child Genetics of Hacettepe University says that pollution primarily reduces the amount of oxygen available in the air and explains the effects of air pollution on the unborn baby as follows:

"Here the important element is oxygen. If in a certain area there is less oxygen available than necessary then a baby in his mother's womb will not receive adequate supplies of blood. This may increase the mother's heart rate and cause palpitation. But this increased heart rate will not raise the blood output, the baby will not get adequate nutrition and as a result he will either die before birth or he will be born weak. In other words, the baby will be born undeveloped."

When we pointed out that physicians prohibit pregnant women from smoking, Dr Balci said: "Breathing air that is this dirty is ten times more dangerous than smoking cigarettes." She continued:

"If prospective mothers smoke a lot in the first or second 3-month period of their pregnancy, they will either have premature deliveries or they will give birth to undeveloped babies."

"So far the effects of Ankara's polluted air on pregnant women have not been extensively studied. But if such a study is carried out it will be seen that women breathing polluted air in the first or second 3-month period of their pregnancy will suffer similar consequences. This study will also show that the weight of infants born at times of high air pollution will be generally less than the weight of those born in better times and that the number of undeveloped baby births has increased in the last few years."

### Babies Prone to Disease

Stating that these undeveloped "premature babies" have difficulty in adjusting to their environment, Dr Balci said:

"These babies contract diseases with permanent effects, such as jaundice, more readily than normal infants. Since such diseases are generally detected in more advanced stages in low-income families, permanent damage occurs in these babies' brains."

When asked "how pregnant women can be protected from polluted air," Dr Balci said: "This is a very serious matter." She continued:

"When the air quality is bad, pregnant women should not venture outdoors unless they have to. On days when the air pollution level reaches very high levels prospective mothers should try to have no contact with the air outside."

"Pregnant women should also not stay in areas where there is a lot of cigarette smoke. I believe there is no need to repeat the fact that they should absolutely refrain from smoking cigarettes."

Stating that the particular matter in polluted air blocks oxygen diffusion in unborn babies, Dr Balci said that the first three months of pregnancy are the most

critical in the development of a child's brain and organs and that oxygen starvation caused by polluted air can have permanent adverse effects on the baby after he is born.

Noting that air pollution causes various types of depression among people, Dr Balci said that pregnant women should not use tranquilizers, such as librium and diazeme, to calm themselves down because these drugs can have adverse effects on their babies.

Dr Balci emphasized that schoolchildren should not run or play in schoolyards on days when the air quality is bad and that children with lung problems should particularly adhere to this rule. Dr Balci said that if a child with lung infection cannot get sufficient oxygen he may have convulsions which may cause permanent brain damage. She said: "Children with lung infection should obey this rule scrupulously."

#### Effects on Human Psychology

Air pollution poses a major health threat to adults as well. It has a particularly aggravating effect on people suffering from diseases of the respiratory tract. Physicians often recommend asthma patients to leave Ankara when the air quality is bad.

Air pollution also has a major effect on the daily behavior of people. Dr Yusuf Savasir, a member of faculty of the Psychiatry Department of Hacettepe University, said during a interview we had in the aftermath of the peak pollution days of 11 and 12 January last winter:

"Air pollution lowers a person's physical energy and depresses him psychologically. Routine work begins to appear as too heavy, the person begins to feel listless and a lack of initiative begins to set in. As a result of the psychological terror air pollution imposes upon a person, it causes depressions which may lead to irrational behavior.

"In my opinion, Ankara's air pollution problem will not be solved for many years to come. I have devoted many years of my life to this profession and the solution that I see for myself is leaving the city after I retire. I advise the same thing to everybody on the street."

#### Ambitious Speculators Cause Problem

Istanbul CUMHURİYET in Turkish 19 Nov 82 pp 9,12

[Text] One of the most important factors that produced the high level of air pollution that Ankara has today is the unsound settlement pattern of the city. Many individuals including planners, speculators and politicians have had a role in this unhealthy settlement pattern.

An issue that becomes an item on the political agenda every time there is a rise in the air pollution level is Ankara's urban plan. Professor İlhan Tekeli, a member of faculty of the Department of Urban Planning of the Middle East Technical University, says on this issue:

"The situation we have in our hands today did not stem from a single mistake; it is the result of many mistakes that compounded on each other. Let us go back to 1927. At that time, a Hungarian meteorology expert wrote a report which suggested that Ankara should be expanded toward Etlik rather than toward Yenisehir. Despite that report, however, in 1929, Jansen developed a plan which envisaged expanding the city toward Yenisehir. In reality, this was not Jansen's fault. The political leaders of the time dictated the direction of expansion of the city to the planner by their public land acquisitions and the roads they had built previously. We know, for example, that Jansen did not want the city to spill to the south of the railway line."

#### How Did Pollution Start?

Professor Tekeli noted that the air pollution problem began in the 1950's and that it began to be felt in the 1960's. He said:

"The reason Ankara's air pollution was not considered a problem until the 1950's, or even the 1960's, is that the city's population did not exceed the level that could be tolerated by the topographic basin surrounding it. In the 1950's the city's population was around 300,000 which is what Jansen's plan envisaged. The basin Ankara sits in can easily absorb the pollution produced by a population of 300,000. But new settlement areas were necessary for the rapidly growing population. To that end, an international contest was held in 1954. The plan that won the contest envisioned a city of 750,000. This plan recommended expansion in the same area that Jansen's plan had suggested. This plan, therefore, accelerated the demolition-construction process in the city and caused pollution to exceed the absorption capacity of the topographic basin."

When talking about Ankara's air pollution, the first thing that comes to mind are houses that use lignite-fired stoves and boilers for central heating. Do the slums that cover a large part of Ankara contribute to the city's air pollution? Professor Tekeli explained the extent of this pollution:

"The contribution of the slums to air pollution is very limited. One apartment unit causes four to five times as much pollution as a slum unit. Furthermore, since the slums are mainly located at the edges of the basin they contribute very little to the polluted mass of air that hangs over the center of the basin."

#### Politicians Have Major Role

When asked whether "the air pollution problem was caused by bad planning alone," Professor Tekeli said "no" and explained:

"Those who decided that the city should grow within the bounds of the basin were politicians rather than planners. We all know that one of the basic elements of Ekrem Barlas' mayoral election campaign platform was the promise to permit to raise apartment buildings by another storey.

"Such decisions made by politicians independent of planners--or even despite the protests of the planners--have made it possible to have around 2.5 million people in the built-up area of the city. These decisions were taken with the full knowledge that they would aggravate the city's air pollution problem.

"Another factor in the rise in air pollution was the pressure exerted by the land speculators on the planners. The final plan was the result of the effects of diverse economic and social forces on planning and political decisions. In such an equilibrium, short-term interest carry more weight, and decisions are therefore taken along those lines."

#### Speculation Blocked Development of Green Areas

Stating that instead of planting trees in the city rows of apartment buildings were built, Professor Tekeli said: "This problem stems from such diverse factors as the disposition of the society to emphasize land speculation, a shortage of resources and political forces that tend to disregard planning."

#### Proposals Drafted in 1967

Istanbul CUMHURİYET in Turkish 20 Nov 82 pp 9,12

[Text] Hundreds of proposals have been submitted by individuals and institutions to solve the capital's air pollution problem, most of them drafted at times when the pollution level reached very high levels. Almost all these proposals are kept on file by the Turkish Scientific and Technical Research Organization [TUBITAK].

Based on the fact that steam reduces the amount of sulfur dioxide in the air, one citizen has proposed that a railway line be built through the center of the city and a steam locomotive run back and forth from one end of the city to the other. Experts studying the proposal told its author that steam would indeed reduce the amount of sulfur dioxide in the air, but with the following problem:

"What are we going to do with the dirty smoke that this coal-fired locomotive will produce?"

Another proposal in TUBITAK files was sent by a retired physics teacher from Aydin. This retired teacher, named Ibrahim Cagir, proposed that a 100-meter tall flue be built to vent the smoke coming from all the factory stacks in Ankara. Cagil stated that this flue would be 2 meters in diameter, could be built out of plastic and that it could be held upright in the air above the city by a hydrogen-filled balloon. The retired teacher did not forget to note that the flue--which would be fastened to the ground by steel cables--should be brought down in stormy weather.

Many citizens are said to have come to TUBITAK in their pajamas claiming that they have a "very important" proposal. TUBITAK officials listen politely to every project author and tell them that they will be contacted after their projects are studied. Those asking for patent rights are told to contact the Ministry of Industry.

Every time Ankara's air pollution problem worsens, officials organize new meetings and draft new proposals. If these officials examine government archives, they will see that the proposals they think are new were all drafted by the government years ago. All these officials need is to read the decisions of the commission which was set up 15 years ago to solve Ankara's air pollution problem under the



chairmanship of Special Adviser to the Prime Minister Savni Belger and incorporating representatives from eight ministries, the Ankara Governor's Office and the Ankara Mayor's Office. When they read those decisions they will see that the proposals they are drafting now are nothing new.

Almost all the proposals that are being put forth today, including recommendations for the use of Tuncbilek lignite which contains less than 2 percent sulfur and better quality fuel oil which contains minimal amounts of sulfur dioxide, the production of smokeless coal and the replacement of lignite with coke, are included in this commission's report dated 22 February 1967. The report further predicts that Ankara's population will exceed 3 million within 10 years and urges the installation of regional or central heating systems. The report also contains all the criticism leveled today against central heating designers. It would not be an exaggeration to say that if the government took a serious stand on the report's recommendations on this issue there would be no "central heating designers problem" today.

When one looks at government archives one sees that the 1972 NATO-CCMS study on Ankara and several other reports prepared by various commissions made up of many scientists obviate the current effort to "reinvent the wheel."

Calls made during the Energy Week in January for the insulation of doors and windows and for smaller windows in buildings were also made 15-20 years ago, but this issue was also neglected from a legal perspective. One wonders why the changes the Ministry of Housing and Resettlement made in the Building Code on 30 October 1981 will apply to private housing units started after 1983.

We return to the 1967 report and we present below the text of the conclusion part of the report leaving to the oxygen-starved residents of Ankara themselves to guess whose victims they are:

1. The measures our commission has proposed above are in step with the decisions of the Experts' Council of the Council of Europe and can be implemented in our country.
2. Each of these measures is like a link in a chain. Being parts of a large system, they can only be effective if they are implemented as a whole.
3. The authorities that will implement the proposed measures are specified at the end of the clauses containing the proposed measures. A list of these assignments is also attached to the report. [Date] 22 February 1967.

#### Millions Spent on Smokeless Fuel

Istanbul CUMHURİYET in Turkish 21 Nov 82 pp 9,12

[Text] It is clear that the allocation of government resources is the most important necessary condition for ridding Ankara of the "black shroud" that covers it in winter months. One may ask: "Has not the government allocated any resources for Ankara? Has there not been any effort to supply the capital with smokeless fuel?" Yes. There have been some stillborn investments amounting to hundreds of millions of Turkish liras. A smokeless fuel plant was built in

generator using German technology. This plant actually produced some smokeless fuel from lignite. But before the fuel was delivered to Ankara it came into contact with air in the freight cars carrying it and burned "smokelessly." The fuel arrived in Ankara in powder form. It was later found out that the German firm that built the plant was only carrying out "technological research." But it was too late; hundreds of millions of Turkish liras had been spent.

The story about this plant is long. Listening to it, one does not know whether to laugh or to cry. But we should not worry that we are the only ones "being swindled." Here is a story by a Turkish representative who attended the meetings of the UN European Economic Commission on environmental protection:

"During a meeting last year, the French delegate asked the German delegate whether his country would help France to build a plant to produce smokeless lignite. I was surprised when the German delegate replied: 'Whenever you like.' A little later, I asked the FRG delegate:

"'What are you doing? The plant you built for us did not work.'

"The German delegate replied:

"'Let him believe me.'"

#### Smoke More Dangerous Than Sulfur Dioxide

When Ankara had its peak pollution levels on 11 and 12 January 1982, officials had already explained to the people how to reduce sulfur dioxide levels. But two separate concurrent studies done in Britain and the United States document the importance of reducing smoke levels in finding a long-term solution to the problem. The smoke level was significantly reduced in London between 1959 and 1965 without reducing the amount of sulfur dioxide in smoke. During the same period, in New York, the sulfur dioxide level was reduced to almost nothing but the smoke level was left untouched. In London, air pollution related deaths dropped by 85 percent while in New York no significant drops in air pollution related deaths was observed. Of course, subsequently, the United States also moved to reduce smoke levels.

Experts note that smoke contains trace amounts of materials, such as mercury, which cause cancer and which are known as "carcinogens."

#### Undersecretary of Environment

The Undersecretariat of Environment of the Office of the Prime Minister works with very limited budget resources and has no legal authority other than the directives issued by the Office of the Prime Minister. Every time the air pollution level rises, the undersecretariat comes under fire. We interviewed the Undersecretary of the Environment Refet Erim after telling him that it is not our intention to lay all the blame on his office. Erim said that Ankara's air pollution is not Turkey's only environmental problem. He added, however, that the fact that Ankara is the capital of the country affects the priority of its problem relative to other problems from a perspective of importance and ways of solving the problem.

#### How Dangerous Levels Are Reached

Noting that Ankara's air pollution problem has a history of 20 to 25 years, Erim said: "Our goal is to reduce the city's air pollution by 50 percent in 1983. If we can achieve that goal we will have scored an important success. But even if we succeed air pollution will still remain at considerably high levels. We are saying that if we could not see beyond 200 meters last year, this year let us be unable to see beyond 400 meters."

Stating that the short-term measures taken this year have been repeatedly explained to the public over the radio and the television, Erim described as major difficulties the fact that the public is giving up its habit of burning coke and the fact that last year around 1,200 buildings illegally changed their central heating systems from oil-fired to coal-fired boilers.

When asked "what steps are being taken toward a long-term solution," Erim said:

"Ankara's air pollution problem was extensively discussed at the meeting of the Economic Council held on 8 November under the chairmanship of the prime minister. It was decided to expedite work on finding a long-term solution to the problem and to complete all preparations for the expeditious evaluation and implementation of possible alternatives for a centralized heating system."

Ankara's air pollution problem is sometimes significantly worsened as a result of meteorological effects. Experts explain as follows how such dangerous pollution levels are obtained:

"The most important factor behind the very high levels of air pollution in winter months is the inversion phenomenon where cold layers of air slide downwards and hot layers escape upwards. This cold air layers block smoke and noxious gases from escaping into the atmosphere and force them down to levels where humans breathe. Then air pollution is said to have reached very dangerous levels."

Authorities in office today are working on the problem and have taken some short-term measures. But what is important is the serious and persistent implementation of these measures. Hundreds of thousands of people, from unborn babies to the elderly, are waiting for such action and for the government to decide to allocate resources necessary for the long-term solution of the problem and to find ways of creating those resources.

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